



Leshner's Poultry Farm, Inc.
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April 8, 2022

U.S. Department of Transportation, Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: Petition for an Exemption to Conduct Unmanned Aircraft Systems (UAS) Operations Allowed by Special authority for certain unmanned aircraft systems. Title 49 U.S.C. § 44807, and 14 C.F.R. Part 11 to Authorize Commercial Agricultural- Related Services with UAS Weighing 55 Pounds or more.

A. SUMMARY:

Leshner's Poultry Farm, Inc is an agricultural production company, and pursuant to Title 49 U.S.C. § 44807, Special **authority** for certain unmanned aircraft systems and 14 C.F.R. Part 11, Leshner's Poultry Farm, Inc., hereby respectfully requests expedited approval and necessary exemptions from the following listed Code of Federal Regulations ("CFR") for the purpose of operating up to three DJI T-30 unmanned aircraft systems ("UAS") weighing over 55 pounds but no more than 171.96 pounds, for aerial application of agricultural products over crop fields. The operations will be conducted within and under the conditions outlined herein, or as may be established by the FAA, as required by Title 49 U.S.C. §44807.

The proposed operation in this Petition for Exemption is similar in nature to that currently conducted by DroneXum, Exemption No. 18413A, except the aircraft in the current petition is the DJI Agras T-30 which was approved by the FAA in Exemption No. 18821B, AgriSprayDrones, and is therefore considered a summary grant for the aircraft and the

requested relief from Condition and Limitation 27c.

As described more fully below, the requested exemption would permit the operation of the DJI T-30(s) by petitioner, under controlled conditions in predetermined airspace that is,

- 1) Limited in scope.
- 2) Controlled as to access by mission essential personnel only.

Grant of the requested exemption is based upon the concise direction expressed within Title 49 U.S.C. § 44807; the added authority granted by the Act, as amended; an equivalent level of safety regarding flight operations as expressed herein, and significant cost savings achieved by transitioning from traditional manned aerial resources to UASs. The petitioner respectfully requests that the FAA grant the requested exemption without delay. Petitioner will operate the DJI T-30(s) while keeping the documents required by the regulations at the ground control station and immediately accessible to the Pilot in Command (PIC) and by modification of the required markings (registration number) of the UAS to be displayed on the fuselage.

The name and address of the Petitioner is: Leshers Poultry Farm, Inc.

The primary contact for this petition,

Leslie J. Bowman
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Chambersburg, PA 17202

In support of this Petition for Exemption, Leshers Poultry Farm, Inc. will submit the following associated UAS operating documents:

- Leshers Poultry Farm, Inc. - Training & Safety Manual
- Leshers Poultry Farm, Inc. - Flight Operations and Procedures Manual
- DJI T-30 Manual
- Leshers Poultry Farm, Inc. - Preflight/Postflight Checklists

All of these documents will be submitted on a confidential basis under separate cover, pursuant to 14 C.F.R. § 11.35(b), as the documents contain confidential commercial and proprietary information

that Lesher's Poultry Farm, Inc. has not and will not share with others. The information contained in this material is not generally available to the public and is protected from release under the Freedom of Information Act, 5 U.S.C. § 552 *et seq*

B. BACKGROUND OF PETITIONER AND MANUFACTURER

Lesher's Poultry Farm, Inc. provides Commercial agricultural spraying services for its own cropland and other local farms with the knowledge and operational infrastructure to conduct precision crop spraying in a safe, precise, and legal manner. The DJI T-30 platform chosen for the operations include the most up to date sophisticated features, are manufactured to be durable, and are the easiest to use systems on the market. Additionally, Lesher's Poultry Farm, Inc. strives for innovative power cell technology with improved power, performance, longevity, and superior weight standards for UAS. DJI Agras drones are designed for maximum flight time with minimum down time. Lesher's Poultry Farm, Inc. plans to utilize a UAS to maximize the value of their land in an efficient, cost-competitive manner reducing reliance on larger potentially more dangerous aircraft. More precise applications of chemicals and of cover crop seed will reduce the environmental impact of the crops treated with these UAS.

Shenzhen DJI Sciences and Technologies Ltd. ^[4] more popularly known as its trade name **DJI** which stands for **Dà-Jiāng Innovations** (Chinese: 大疆创新, "great frontier innovation"), is a Chinese technology company headquartered in Shenzhen, Guangdong with factories throughout the world. DJI is a world-leading manufacturer of commercial unmanned aerial vehicles (commonly known as "drones") for aerial photography and videography. It also designs and manufactures camera gimbals, action cameras, camera stabilizers, flight platforms and propulsion systems and flight control systems. DJI is the dominant market leader in the civilian drone industry, accounting for over 70 percent of the world's drone market. Its drone technology has been used globally.

Lesher's Poultry Farm, Inc. will be utilizing the same DJI T-30 as well as proven technologies the FAA has already accepted and approved in numerous previous Exemptions. All the appropriate documentation to accompany Lesher's Poultry Farm, Inc..

Additionally, the DJI T-30 has logged more than 8,000 hours of testing since its inception by DJI. With over 1500 units sold globally (Most in China & Japan) on an annual basis with an estimated 800,000 hours flown safely by customers worldwide. The T-30 is a new advancement in agricultural spraying/spreading applications in the U.S.

C. SYSTEM BENEFITS AND ENHANCED SAFETY

Lesher's Poultry Farm, Inc. intent is to apply agricultural chemicals and seed to enhance its crop production and assist other local farmers to do the same on their crop fields. This process protects crops from biological organisms, including weeds, pathogens, and arthropods, that interferes with the production of crops affecting quality and/or yield. Insects can have large and irreversible effects on crops and yields, which can impact consumers through higher crop prices. Spraying herbicides benefits agricultural ecology and increases the efficiency of harvesting operations. Moreover, the T30 will allow efficient methods of application to be used by Lesher's Poultry Farm, Inc. to optimize the use of pesticides thus reducing the negative impact of excess pesticide application and residual chemicals being left in the soil or running off into streams or the water table.

Applications by manned helicopters for agriculture carries significant risks of fatality. This was such a concern that in 2014 the National Transportation and Safety Board commissioned a report to understand root causes. The enhanced safety achieved using an unmanned aircraft with the specifications described in this petition, as opposed to the much larger, manned aircraft carrying fuel and crew or passengers, is safer and exposes workers and other people on the ground to significantly less risk.

Additionally, Lesher's Poultry Farm, Inc. uses batteries which are not as flammable and explosive as 100LL or Jet A fuel. If there was an emergency where the UA crashed, there is a significantly lower chance of individuals being injured from an explosion or fire.

According to a USDA Economic Research Service Report, of the United States' 408 million acres of cropland, about 70% (286 million acres) is commercially treated with crop protection products. Out of that, the agricultural aviation industry treats 71 million acres of cropland aurally each year. By utilizing UAS, this vital portion of our nation's food supply can be treated in a more environmentally safe way, thus protecting our streams from excessive chemical run off, algae blooms, etc.

Manned aircraft availability and scheduling are becoming increasingly difficult and costly for Lesher's Poultry Farm, Inc. On average, each manned aerial application business has 2.1 aircraft, ranging in price from \$100,000 to \$1,400,000 depending on hopper size, engine type and engine size. Pilot shortages, aircraft shortages, and driver shortages are increasing. Smaller owners and nongovernmental organizations without several hundred thousand acres are finding it difficult to obtain economical services with these figures.

Lesher's Poultry Farm, Inc. can make applications at a lower cost and better timing and provide a service for other local farms.

Manned airplanes and helicopters produce significant noise pollution that disrupt the public's ability to enjoy both private and public property. UAS are much quieter and will not disrupt the public as much as manned aircraft; thus, the benefit will be recognized as a reduction in noise pollution. Pesticides being sprayed from high elevations can be picked up by the wind and carried for miles. By flying at a lower altitude (6-12 m), and by never leaving the customer's site, there is a significantly reduced chance of pesticides ("driftable fines") being accidentally sprayed in the wrong area. With manned aircraft and helicopters, this can happen in several ways: Pilot error or map misinterpretation enroute to the site, pesticides being picked up by the wind and blown onto neighboring property affecting commercial cropland and residential areas, and equipment malfunction.

D. Description of UAS

The Agras T30 has an improved overall structure with modular design and supports the highest payload and widest spray width ever in a DJI agricultural drone. With powerful hardware, an AI engine, and 3D-operation planning, the T30 brings operation efficiency to a whole new level. The all-new modular design of the T30 simplifies assembly and accelerates daily maintenance. An IP67 rating provides reliable protection for key components of the drone. A light, yet durable airframe is made of carbon fiber composites and can be quickly folded to 25% of its original size, making it easy for transportation. Both the battery and spray tank are easily swappable, significantly improving the efficiency of power and liquid supply.

Supported by its outstanding flight performance, the T30 spray tank can carry up to 30L, and the spray width has increased to 9m. The spraying system has 4 delivery pumps and 16 sprinklers with a maximum spray rate of 8 L/min. The T30 can spray up to 240 acres per hour, 33% higher than the previous generation of products. The exclusive deformable wing design effectively improves the flight control effect of fruit trees. It is equipped with a more reliable spreading system to effectively improve spreading effectiveness. The spraying system also has an all-new electromagnetic flow meter, providing higher precision and stability than conventional flow meters.

The all-new modular aerial-electronics system in the T30 has dual IMUs and barometers and adopts a propulsion signal redundancy design to ensure flight safety. The GNSS+RTK dual-redundancy system supports centimeter-level positioning. It also supports dual-antenna

technology that provides strong resistance against magnetic interference.

The T30's upgraded radar system can sense the operating environment during the day or at night, without being affected by light or dust. It has greatly improved flight safety with forward and backward obstacle avoidance and a horizontal FOV (field of view) of 100°, double that of previous DJI agricultural drones. It can also detect the angle of a slope and adjust to it automatically even in mountainous terrain. This innovative radar system adopts Digital Beam Forming (DBF) technology, which supports 3D point cloud imaging that effectively senses the environment and helps to circumvent obstacles.

The T30 provides different modes for flat ground, mountains, and orchards, to meet most operational needs. Up to three T30 aircraft can be controlled by a single T30 smart remote controller simultaneously, tripling the efficiency of single-pilot operation.

Specifications:

Product Model	3WWDZ-30A
Airframe	
Max Diagonal Wheelbase	2145 mm
Dimensions	2858×2685×790 mm (arms and propellers unfolded) 2030×1866×790 mm (arms unfolded and propellers folded) 1170×670×857 mm (arms and propellers folded)
Propulsion System	
Motors	
Max Power	3600 W/rotor
ESCs	
Max Working Current (Continuous)	60 A
Foldable Propellers (R3820)	
Diameter × Pitch	38×20 in
Spraying System	
Spray Tank	
Volume	Fully loaded: 30 L
Operating Payload	Fully loaded: 30 kg
Nozzles	
Model	XR11001VS (standard), XR110015VS (optional, purchase separately), TX-VK4/ZX-VK4 (optional for Orchard Configuration, purchase separately)
Quantity	16
Max Spray Rate	XR11001VS: 7.2 L/min, XR110015VS: 8 L/min
Spray Width	4-9 m (12 nozzles, at a height of 1.5-3 m above crops)
Droplet Size	XR11001VS: 130-250 μm, XR110015VS: 170-265 μm (subject to operating environment and spray rate)
Flow Meter	
Measurement Range	0.25-20 L/min
Error	<±2%
Measurable Liquid	Conductivity >50 μS/cm (liquids such as tap water or pesticides that contain water)
Omnidirectional Digital Radar	
Model	RD2424R
Operating Frequency	SRRC/NCC/FCC/MIC/KCC/CE: 24.05-24.25 GHz
Power Consumption	12 W
Transmission Power (EIRP)	SRRC: ≤13 dBm; NCC/MIC/KCC/CE/FCC: ≤20 dBm
Altitude Detection & Terrain Follow ^[1]	Altitude detection range: 1-30 m Stabilization working range: 1.5-15 m Max slope in Mountain mode: 35°
Obstacle Avoidance ^[1]	Obstacle sensing range: 1.5-30 m FOV: Horizontal: 360°, Vertical: ±15° Working conditions: flying higher than 1.5 m over the obstacle at a speed lower than 7 m/s Safety limit distance: 2.5 m (distance between the front of propellers and the obstacle after braking) Obstacle avoidance direction: omnidirectional obstacle avoidance in the horizontal direction.
IP Rating	IP67
Upward Radar	
Model	RD2414U
Operating Frequency	SRRC/NCC/FCC/MIC/KCC/CE: 24.05-24.25 GHz
Power Consumption	4 W
Transmission Power (EIRP)	SRRC: ≤13 dBm; NCC/MIC/KCC/CE/FCC: ≤20 dBm
Obstacle Avoidance ^[1]	Obstacle sensing range: 1.5-15 m FOV: 80° Working conditions: available during takeoff, landing, and ascending when an obstacle is more than 1.5 m above the aircraft. Safety limit distance: 2 m (distance between the highest point of the aircraft and the lowest point of the obstacle after braking) Obstacle avoidance direction: Upward
IP Rating	IP67
FPV Cameras	
FOV	Horizontal: 129°, Vertical: 82°

Resolution	1280×720 15-30fps
FPV Spotlights	FOV: 120°,Max brightness: 13.2 lux at 5 m of direct light
Flight Parameters	
Operating Frequency	SRRC/NCC/FCC/CE/MIC/KCC: 2.4000-2.4835 GHz SRRC/NCC/FCC/CE: 5.725-5.850 GHz ^[2]
Transmission Power (EIRP)	2.4 GHz SRRC/CE/MIC/KCC: ≤20 dBm, FCC/NCC: ≤31.5 dBm 5.8 GHz FCC/SRRC/NCC: ≤29.5 dBm, CE: ≤14 dBm
Total Weight (exc. battery)	26.3 kg
Max Takeoff Weight	Max takeoff weight for spraying: 66.5 kg (at sea level) Max takeoff weight for spreading: 78 kg (at sea level)
Hovering Accuracy Range (with strong GNSS signal)	D-RTK enabled: Horizontal: ±10 cm, Vertical: ±10 cm D-RTK disabled: Horizontal: ±0.6 m, Vertical: ±0.3 m (Radar module enabled: ±0.1 m)
RTK/GNSS Operating Frequency	RTK: GPS L1/L2, GLONASS F1/F2, BeiDou B1/B2, Galileo E1/E5 ^[3] GNSS: GPS L1, GLONASS F1, Galileo E1 ^[3]
Battery	DJI-approved flight battery (BAX501-29000mAh-51.8V)
Max Power Consumption	13000 W
Hovering Time ^[4]	20.5 min (takeoff weight of 36.5 kg with an 29000 mAh battery) 7.8 min (takeoff weight of 66.5 kg with an 29000 mAh battery)
Max Tilt Angle	15°
Max Operating Speed	7 m/s
Max Flying Speed	10 m/s (with strong GNSS signal)
Max Wind Resistance	8 m/s
Max Service Ceiling Above Sea Level	4500 m
Recommended Operating Humidity	<93%
Recommended Operating Temperature	0° to 45° C (32° to 113° F)
Remote Controller	
Model	RM500-ENT
Screen	5.5-in screen, 1920×1080, 1000 cd/m², Android system
RAM	4GB
Built-in Battery	18650 Li-ion (5000 mAh @ 7.2 V)
GNSS	GPS+GLONASS
Power Consumption	18 W
Operating Temperature	0° to 45° C (14° to 113° F)
Charging Environment Temperature	5° to 40° C (41° to 104° F)
Storage Temperature	-30° to 60° C (-22° to 140° F) (stored for no more than one month with a built-in battery power of 40% to 60%)
OcuSync Enterprise	
Operating Frequency	SRRC/NCC/FCC/CE/MIC/KCC: 2.4000-2.4835 GHz SRRC/NCC/FCC/CE: 5.725-5.850 GHz ^[2]
Effective Transmission Distance (Unobstructed, free of interference)	FCC/NCC: 7 km, SRRC: 5 km, MIC/KCC/CE: 4 km
Transmission Power (EIRP)	2.4 GHz SRRC/CE/MIC/KCC: ≤20 dBm, FCC/NCC: ≤30.5 dBm 5.8 GHz SRRC: ≤21.5 dBm FCC/NCC: ≤29.5 dBm, CE: ≤14 dBm
Wi-Fi	
Protocol	Wi-Fi Direct, Wi-Fi Display, 802.11a/g/n/ac Wi-Fi with 2×2 MIMO
Operating Frequency	2.4000-2.4835 GHz 5.150-5.250 GHz 5.725-5.850 GHz ^[2]
Transmission Power (EIRP)	2.4 GHz

	SRRC/CE: 18.5 dBm, NCC/FCC /MIC/KCC: 20.5 dBm 5.2 GHz SRRC/NCC/FCC/CE/MIC: 14 dBm, KCC: 10 dBm 5.8 GHz SRRC/NCC/FCC: 18 dBm, CE/KCC: 12 dBm
Bluetooth	
Protocol	Bluetooth 4.2
Operating Frequency	2.4000-2.4835 GHz
Transmission Power (EIRP)	SRRC/NCC/FCC/CE/MIC/KCC: 6.5 dBm
Remote Controller Intelligent Battery	
Model	WB37-4920mAh-7.6V
Battery Type	2S LiPo
Capacity	4920 mAh
Voltage	7.6 V
Energy	37.39 Wh
Charging Environment Temperature	5° to 40° C (41° to 104° F)
Intelligent Battery Charging Hub	
Model	WCH2
Input Voltage	17.3-26.2 V
Output Voltage and Current	8.7 V, 6 A
Operating Temperature	5° to 40° C (41° to 104° F)
AC Power Adapter	
Model	A14-057N1A
Input Voltage	100-240 V, 50/60 Hz
Output Voltage	17.4 V
Rated Power	57 W

[1] The effective radar range varies depending on the material, position, shape, and other properties of the obstacle.

[2] Local regulations in some countries prohibit the use of the 5.8 GHz and 5.2 GHz frequencies. In some countries, the 5.2 GHz frequency band is only allowed for indoor use.

[3] Support for Galileo will be available at a later date.

Hovering time acquired at sea level with wind speeds lower than 3 m/s

6600W 4 Channel Intelligent Battery Charger

Up to four batteries can be charged simultaneously. When using the single-channel quick charging mode, a full charge only takes 20 minutes, a 50% increase in speed from the previous generation. The charger has a built-in battery health management system that monitors critical data in real time, such as voltage and temperature, to ensure charging safety.

T 30 Intelligent Flight Battery

The T30 Intelligent Flight Battery has a capacity of 29000 mAh and a 51.8 high voltage system that reduces power consumption. It is designed with an IP54-rated all-metal housing, and heat dissipation efficiency has increased by 140% from the previous generation. Supported by cell balancing technology, the battery has an increased charging cycle of up to 400, 100% higher than the previous generation, significantly reducing operating costs.

E. Standard Components & Safety Systems

The all-new modular design of the T30 simplifies assembly. The airframe can be quickly folded, making it easy for transportation. Both the battery and spray tank are easily swappable, significantly improving the efficiency of power and liquid supply. The T30 has an aerial electronics system with a multiple redundancy design, and also has onboard D-RTK antennas, supporting dual-antenna technology that provides strong resistance against magnetic interference to ensure flight safety. Thanks to the dedicated DJI industrial flight control system, the T30 offers four operation modes: Route, A-B Route, Manual, and Manual Plus. DJI MG2 automatically produces flight routes based on your planned fields. To start, simply select the field from the field list. Plan a field by walking with the remote controller, an RTK handheld mapping device, or by flying the aircraft to waypoints, according to the application scenarios. In scenarios with complicated terrain, use the PHANTOM™ 4 RTK and DJI Terra to plan 3D flight routes, and import the routes to DJI MG2 for operation.

In A-B Route operation mode, the aircraft travels along a planned route and sprays its liquid payload. Users can set the line spacing, flying speed, and other parameters.

In Manual operation mode, users can start and stop spraying manually and adjust the spray rate. In Manual Plus operation mode, the flight speed is restricted, and the heading is locked. Except for the heading, users can control the movement of the aircraft via the control sticks. Press button C1 or C2 on the remote controller or the corresponding button in the app and the aircraft will fly one line spacing to the left or right. Note that this is the default function for button C1 and button C2. They are customizable in the app.

The T30 also includes the Operation Resumption function. When pausing the operation in Route or A-B Route operation mode, Operation Resumption records a breakpoint for the aircraft. Users can resume from the breakpoint when continuing the operation.

The remote controller features Multi-Aircraft Control mode, which can be used to coordinate the operation of up to five aircraft simultaneously. Turn the aircraft control switch dial on the remote controller to switch control between different aircraft.

The DBF imaging radar works automatically in Route, A-B Route, and Manual Plus operation modes during both day and night, without being affected by light or dust.

Altitude detection and stabilization functions are available in forward, backward, and downward directions while Obstacle Avoidance is available in forward or backward direction according to the direction of flight.

The radar module can detect the angle of a slope and automatically adjust to maintain the same distance with the surface even in mountainous terrain. In Route and A-B Route operation modes, the radar can effectively sense obstacles and plan a flight route to actively circumvent obstacles. Note that this is disabled by default. Users can enable it in the app.

The upgraded spraying system includes eight sprinklers placed on both sides of the aircraft to provide evenly distributed spraying and coverage of the liquid payload, and an all-new electromagnetic flow meter for higher precision and stability than conventional flow meters. The T30 uses a dedicated DJI industrial flight controller to provide multiple operation modes for various applications. The DBF imaging radar provides terrain following to guide the aircraft to maintain a constant distance above crops in specific operation modes and is capable to actively circumvent obstacles through Auto Bypass. Functions such as operation resumption, system data protection, empty tank warning, low battery level warning, and RTH are also available.

F. Flight Modes

P-mode (Positioning): The aircraft utilizes GNSS or the RTK module for positioning. When the GNSS signal is strong, the aircraft uses GNSS for positioning. When the RTK module is enabled and the differential data transmission is strong, it provides centimeter-level positioning. The aircraft reverts to A-mode when the GNSS signal is weak. The aircraft will fly in P-mode by default.

A-mode (Attitude): GNSS is not used for positioning and the aircraft can only maintain altitude using the barometer. The aircraft enters A-mode only when there is weak GNSS signal or when the compass experiences interference. The flight speed in A-mode depends on its surroundings such as the wind speed. In A-mode, the aircraft cannot position itself and is easily affected by its surroundings, which may result in horizontal shifting. Use the remote controller to position the aircraft. Maneuvering the aircraft in A-mode can be difficult. Avoid flying in confined spaces or in areas where the GNSS signal is weak. Otherwise, the aircraft will enter A-mode, leading to potential flight risks. Land the aircraft in a safe place as soon as possible.

G. System Data Protection

In Route or Route A-B operation mode, the System Data Protection feature enables the aircraft to retain vital system data such as operation progress and breakpoints after the aircraft is powered off to replace a battery or refill the spray tank. Follow the instructions in Operation Resumption to resume the operation after restarting the aircraft.

During Route operations, in situations such as when the app crashes or the remote controller disconnects from the aircraft, the breakpoint will be recorded by the flight controller and can be recovered in the app once the aircraft is reconnected. Go to Operation View, select, then Advanced Settings, and tap Continue Unfinished Task. Recall the operation in Executing tag in operation list.

H. Obstacle Avoidance

Obstacle avoidance is used in the following two scenarios:

1. The aircraft begins to decelerate when it detects an obstacle is 15 m away and hovers in place when 2.5 m away from the obstacle. Users can not accelerate in the direction of the obstacle, but can fly in a direction away from the obstacle.
2. The aircraft immediately brakes and hovers if it detects an obstacle nearby. Users cannot control the aircraft when it is braking.

When the aircraft is hovering, it is in Obstacle Avoidance mode. Users can fly in a direction away from the obstacle to exit Obstacle Avoidance mode and regain full control of the aircraft.

I. Empty Tank & Smart Supply Reminder

The T30 features empty tank warnings and smart supply reminder functions. The aircraft calculates the empty tank and refill points according to the preset remaining liquid level threshold, current remaining liquid level, aircraft status, and operation parameters and displays the points on the map. In Route operations, users can set the action the aircraft will perform for empty tank and refill points. For A-B Route, Manual, and Manual Plus operations, users can only set the empty tank warning and the action the aircraft will perform at empty tank points.

J. Return to Home (RTH)

There are two types of RTH: Smart RTH and Failsafe RTH.

Smart RTH

Press and hold the RTH button on the remote controller when GNSS is available to enable Smart RTH. Both Smart and Failsafe RTH use the same procedure. With Smart RTH, you may control the speed and altitude of the aircraft to avoid collisions when returning to the home point.

The aircraft status indicators will show the current flight mode during RTH. Press the RTH button once or toggle the pause switch to exit Smart RTH and regain control of the aircraft.

Failsafe RTH is automatically activated if the remote controller signal is lost for more than three seconds, provided that the home point has been successfully recorded, the GNSS signal is strong (the white GNSS icon), and the RTK module is able to measure the heading of the aircraft. The RTH continues if the remote controller signal is recovered, and users can control the aircraft using the remote controller.

Press the RTH button once or toggle the pause switch to cancel RTH and regain control of the aircraft.

There are two ways to set a home point:

1. Set the current coordinates of the aircraft as the home point.
2. Set the current coordinates of the remote controller as the home point.

Obstacle Avoidance during RTH

In an optimal operating environment, obstacle avoidance during RTH is available. If there is an obstacle within 20 m of the aircraft, the aircraft decelerates and then stops and hovers. The aircraft will exit the RTH procedure and waits for further commands.

Landing Protection Function

Landing Protection activates during auto landing.

The procedure is as follows:

1. After arriving at the home point, the aircraft descends to a position 3 m above the ground and hovers.
2. Control the pitch and roll sticks to adjust the aircraft position and make sure the ground is

suitable for landing.

3. Pull down the throttle stick or follow the onscreen instructions in the app to land the aircraft.

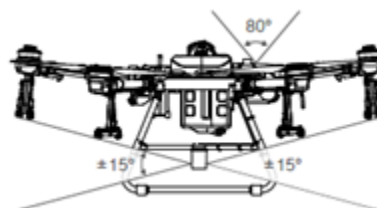
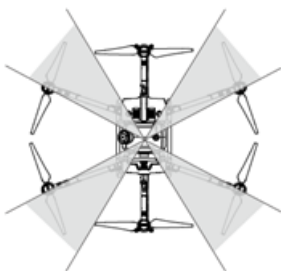
K. Spherical Radar System

The Spherical Perception Radar System, consisting of the Omnidirectional Digital Radar and Upward Radar, works during day and night and is unaffected by light or dust. In an optimal operating environment, the omnidirectional digital radar can predict the distance between the aircraft and the vegetation or other surfaces in forward, backward, and downward directions to fly at a constant distance to ensure even spraying and terrain following capability. The radar system can detect obstacles in all horizontal directions from 30 m away and from 15 m above in the upward direction. It effectively senses the environment and helps to circumvent obstacles in both Route and A-B Route operation modes. In addition, the radar module limits the descent speed of the aircraft according to the distance between the aircraft and ground in order to provide a smooth landing.

The altitude stabilization and obstacle avoidance functions of the radar module are enabled by default and can be disabled in the app. When enabled, the aircraft flies above the vegetation at a constant spraying distance in Route, A-B Route, and Manual Plus operation modes. In Manual operation mode, the radar module can measure the spraying distance above the vegetation or other surfaces, but the aircraft is not able to fly at a constant spraying distance. Obstacle avoidance can be used in any mode. Auto Obstacle Avoidance is disabled by default. Users can enable it in the app.

Detection Range

The obstacle detection distance of the omnidirectional digital radar is 1.5-30 m while the upward radar has a detection distance of 1.5-15 m. The FOV of the system is shown in the figure below. The aircraft cannot sense obstacles that are not within the detection range. For the four gray areas in the figure, the detection performance of the radar module may be reduced due to the obstruction of the frame arms and landing gear. Fly with caution.



The effective detection distance varies depending on the size and material of the obstacle. When sensing objects such as buildings that have a radar cross section (RCS) of more than -5 dBsm, the effective detection distance is 20 to 30 m. When sensing objects such as power lines that have a RCS of -10 dBsm, the effective detection distance is approximately 15 m. When sensing objects such as dry tree branches that have a RCS of -15 dBsm, the effective detection distance is approximately 10 m. Obstacle sensing may be affected or unavailable in areas outside of the effective detection distance.

L. Low Voltage and Battery Warnings

The aircraft features a low battery warning, critical low battery warning, and critical low voltage warning.

1. Low Battery Warning: The aircraft status indicators slowly blink red. Fly the aircraft to a safe area and land it as soon as possible, stop the motors, and replace the batteries.
2. Critical Battery Warning or Critical Voltage Warning (the battery voltage is lower than 47.6 V): the aircraft status indicators rapidly blink red. The aircraft begins to descend and land automatically.

Users can set the threshold of low battery warnings.

M. Remote Controller Profile

The remote controller uses the DJI OcuSync Enterprise image transmission system, which has a maximum control distance of up to 7 km (4.35 mi). It includes a dedicated, Android-based display that runs DJI Agras independently for operation planning and aircraft status display. Its Multi-Aircraft Control mode (supported later) can be used to coordinate the operation of up to three aircraft at the same time to improve operation efficiency.

RTH Button

Press and hold the RTH button to bring the aircraft back to the last recorded home point. The LED around the RTH Button blinks white during RTH. Users can control aircraft heading while it flies to the home point. Press this button again to cancel RTH and regain control of the aircraft.

DJI T-30 App

DJI Agras is designed for agricultural applications. The app has a clear and concise interface and displays the status of the aircraft, spraying system, and other devices connected to the remote controller and enables users to configure various settings. After planning a field via the intelligent operation planning system of the app, the aircraft can automatically follow the pre-planned flight route.

Task Management

1. View planned fields and operation progress. You can synchronize the local data with the data

on the DJI AG Platform.

2. User Info: View account information.

3. Aircraft Info: View the information of the connected aircraft such as the firmware version.

4. General Settings: Tap for settings such as units of measurement, network diagnosis, and Android system settings.

5. More: Includes FAQ and available firmware update.

6. Aircraft Connection Status: Shows if the aircraft is connected to the remote controller.

7. Plan a Field | Execute Operation

Plan a Field: Tap the button and select planning method to plan a field.

Execute Operation: Tap to enter Operation View to view the aircraft status, configure settings, and switch between different operations modes.

N. Flight Limits and Geo Zones

Unmanned aerial vehicle (UAV) operators should abide by the regulations from self-regulatory organizations such as the International Civil Aviation Organization, the Federal Aviation Administration, and their local aviation authorities. For safety reasons, flight limits are enabled by default to help users operate this aircraft safely and legally. Users can set flight limits on height and distance.

When operating with a strong GNSS signal, the height and distance limits and GEO zones work together to monitor flight. With a weak GNSS signal, only the height limit prevents the aircraft from going above 100 meters.

GEO Zones are divided into different categories. All GEO Zones are listed on the DJI official website at <http://www.dji.com/flysafe>.

Flight Recording of all flights: Flight data shows a real-time video of all operator control input, GPS statuses, vibrate, shake and motor balance statuses along with battery voltage and all other critical telemetry data allowing operator to fully track entire history. All flights are automatically saved on the GCS. This further adds to safety for operator and VO training as operator-caused issues can be quickly identified. Further, it allows for remote diagnostics and has a financial benefit not requiring aircraft and components to be unnecessarily shipped.

High Visibility LED Aviation Lighting: Long-range visible, high intensity LED strobes.

O. REGULATORY BASIS FOR PETITION AND REGULATIONS FROM WHICH EXEMPTION IS SOUGHT

1. 49 U.S.C § 44807

The Special Authority for Certain Unmanned Systems (49 U.S.C. § 44807) grants the Secretary of Transportation the authority to use a risk-based approach to determine whether an airworthiness certificate is required for a drone to operate safely in the NAS. Under this authority, the Secretary may grant exemptions to the applicable operating rules, aircraft requirements, and pilot requirements for a specific operation on a case-by-case basis. The Special Authority for Certain Unmanned Systems (49 U.S.C. § 44807) grants UAS operators safe and legal entry into the NAS upon consideration of its size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight. The FAA further may find that the UAS does not require “airworthiness certification under section 44704 of title 49, United States Code.”

2. 49 U.S.C. § 44701

The FAA is further authorized to grant exemptions from its safety regulations and minimum standards under 49 U.S.C. § 44701 (“Section 44701”) “if the Administrator finds the exemption is in the public interest.” Section 44701(f) (authorizing the grant of exemptions from safety regulations and minimum standards under Section 44701(a) and (b) and Sections 44702-44716). Under 49 U.S.C. § 44701(f), the “Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any of sections 44702-44716 of [Title 49] if the Administrator finds the exemption is in the public

interest.”

For the reasons addressed herein, this Petition qualifies for expedited approval of Petitioner’s request for exemption under both 49 U.S.C § 44807 and 49 U.S.C § 44701.

Lesher’s Poultry Farm, Inc. seeks exemption from the following interrelated provisions of 14.F.R. Parts 61, 91, and 137:

P. FAR Description

§ 61.3 (a)(1)(i) Requirement for certificates, ratings, and authorizations.

§ 91.7(a) Civil aircraft airworthiness.

§ 91.119(c) Minimum safe altitudes: General.

§ 91.121 Altimeter settings.

§ 91.151(b) Fuel requirements for flight in VFR conditions.

§ 91.403(b) Maintenance, preventative maintenance, or alterations to an aircraft

§ 91.405(a) Maintenance required.

§ 91.407(a)(1) Operation after maintenance, preventive maintenance, rebuilding, and inspections.

§ 91.409(a)(1) and (2) Inspections.

§ 91.417(a) and (b) Maintenance records.

§ 137.19 (c), (d) and (e)(2)(ii)(iii) and (v) Certification requirements.

§ 137.31 Aircraft requirements.

§ 137.33 Carrying of certificate.

§ 137.41(c) Personnel, Pilot in command.

§ 137.42 Fastening of safety belts and shoulder harnesses.

Listed below are the specific Code of Federal Regulation (“CFR”) sections from which an exemption is sought, the rationale for why an exemption is needed, and a brief summary of the operating procedures and safeguards, which are described more fully in the operating documents being submitted under separate cover, which will ensure that the proposed operations can be conducted at a level of safety that is at least equal to that provided by the rule from which exemption is sought. For ease of review, this section divides the FARs from which exemption is sought into four main categories: (1) FARs pertaining to the UAS; (2) FARs pertaining to UAS Operating Parameters, and (3) FARs pertaining to Part 137 Operating

Parameters.

To expedite the FAA's safety assessment of the proposed UAS operations, except where explicitly noted, Leshor's Poultry Farm, Inc. agrees to conduct the proposed operations in accordance with the same applicable conditions and limitations ("Limitations") included in the previous DroneXum, Exemption No. 18413A.

1. FARs Pertaining to the Unmanned Aircraft System

§ 91.403(b) Maintenance, preventative maintenance, or alterations to an aircraft

§ 91.405(a) Maintenance required

§ 91.407(a)(1) Operation after maintenance, preventive maintenance, rebuilding, or alteration

§ 91.409(a)(1) and (2) Inspections

§ 91.417(a) and (b) Maintenance records

Leshor's Poultry Farm, Inc. seeks an exemption from the following maintenance and inspection related FARs: §§ 91.403(b) Maintenance, preventative maintenance, or alterations to an aircraft, 91.405(a) Maintenance required, 91.407(a)(1) Operation after maintenance, preventive maintenance, rebuilding, or alteration, 91.409(a)(1) and (2) Inspections, and 91.417(a) and (b) Maintenance records. These regulations specify maintenance, inspection, and records standards in reference to FAR § 43.6. An exemption from these regulations is needed because Part 43 and these sections only apply to aircraft with an airworthiness certificate, which the UAS to be operated under this exemption will not have, and because compliance with these regulatory provisions in the context of UAS operations is not feasible.

An equivalent level of safety will be achieved because maintenance, inspections, and records handling will be performed in accordance with the manufacturer's manual, any required manufacturer safety or service bulletins. Moreover, the PIC will conduct a pre-flight inspection of the UAS and all associated equipment to account for all discrepancies and/or inoperable components. Maintenance will be performed and verified to address any conditions potentially affecting the safe operation of the UAS, and no flights will occur unless and until all flight critical components of the UAS have been found to be airworthy and in a condition for safe operation. A functional test flight will also be conducted in a controlled environment following the replacement of any flight critical components, and as required by the operating

documents, the PIC who conducts the functional test flight will make an entry in the UAS aircraft records of the flight.

Functional flight tests will not involve the carriage of hazardous materials, will not be a multivehicle operation, and the vehicle will have an all-together weight below 55 pounds during flight testing. In addition, the operator will be required to follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the UAS and its components. Along with the preflight checklists, Leshar's Poultry Farm, Inc. Pilot Training Program, and a routine maintenance program, Leshar's Poultry Farm, Inc. believes an equivalent level of safety is met, and that equipment at risk of failure can be safely identified before flights occur.

In the DroneXum Exemption, the FAA determined that the proposed UAS operations required exemption from FAR §§ 91.403(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), and that the achievement of an adequate level of safety required certain conditions and limitations. Leshar's Poultry Farm, Inc. has proposed in this Petition several limitations related to maintenance, inspections, and records which it believes provide a level of safety at least equivalent to that provided by FAR §§ 91.403(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b). For this reason, and consistent with the exemption granted from these sections in the DroneXum Exemption, Leshar's Poultry Farm, Inc. requests an exemption from these sections subject to the DroneXum Exemption, without having to perform the inspections and maintenance items required by FAR §§ 91.403(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b).

2. FARs Pertaining to Unmanned Aircraft System Operating Parameters § 91.7(a) Civil aircraft airworthiness.

In as much as there will be no airworthiness certificate issued for the UAS, Leshar's Poultry Farm, Inc. seeks an exemption from FAR § 91.7(a) Civil aircraft airworthiness, which requires that a civil aircraft be in an airworthy condition to be operated. While the UAS operated by Leshar's Poultry Farm, Inc. will not have an airworthiness certificate, consistent with the FAA's determination in the DroneXum Exemption, the pilot may determine the UA is in an airworthy condition prior to flight. As described more fully in the operating documents, this is achieved through adherence to Leshar's Poultry Farm, Inc. routine pre-flight checklist

regularly scheduled maintenance, and the enhanced pilot training requirements of Lesher's Poultry Farm, Inc. Pilot Training Program.

§ 91.119(c) Minimum safe altitudes

Lesher's Poultry Farm, Inc. also seeks an exemption from FAR § 91.119(c) Minimum safe altitudes, to the extent necessary to allow UAS operations over other than congested areas at altitudes lower than those permitted by rule. The ability to operate at those altitudes is one of the key benefits of using UAS for the proposed agricultural activities. An equivalent or greater level of safety will be achieved given the size, relatively light weight, and slow speed of the UAS, as well as the controlled location where the operations will occur.

Lesher's Poultry Farm, Inc. generally will try to maintain an operating altitude of between 10-25 feet AGL during its spraying operations. That altitude is only increased when exercising caution and issuing a return-to-launch command to the UAS, which causes the UAS to ascend to an altitude of 200 feet AGL before returning home. In the extremely remote and secure environment where Lesher's Poultry Farm, Inc. operations will occur, flying at a low altitude increases the aircraft's efficiency, without posing any increased risk to people or property. Even at these low altitudes, Lesher's Poultry Farm, Inc.'s UAS operations will be conducted at a level of safety equal to or greater than that achieved by a larger manned aircraft performing similar activities at the altitudes required by FAR § 91.119. Moreover, an equivalent or even higher level of safety can be provided instead by, as provided herein, operating to de-conflict with manned vehicles operating above 500 feet AGL, within the VLOS of the PIC with the assistance of multiple VOs so as to ensure the safety of and de- confliction with any persons or property in the air and on the ground, including Participating and non-Participating personnel as well as the other UAS.

§ 91.121 Altimeter settings

Lesher's Poultry Farm, Inc. also requests an exemption from FAR § 91.121 Altimeter settings, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport or barometric pressure. In the Coastal Spray Exemption, the FAA stated that an equivalent level of safety to the requirements of FAR § 91.121 can be achieved in circumstances where the

PIC uses an alternative means for measuring and reporting UA altitude, such as global positioning system (GPS). The UAS that Lesher's Poultry Farm, Inc. intends to use for performing the proposed operations will be equipped with GPS or other equipment for measuring and reporting UAS altitude, and the PIC will check the UA altitude reading prior to each takeoff, effectively zeroing the UA's altitude at that point. Consistent with previously granted exemptions, these requirements ensure that an equivalent level of safety will be achieved, and an exemption from the requirements of FAR § 91.121 is therefore appropriate.

§ 91.151(b), Fuel requirements for flight in VFR conditions

Finally, Lesher's Poultry Farm, Inc. seeks an exemption from FAR § 91.151(b) Fuel requirements for flight in VFR conditions, which would otherwise require a 20-minute fuel reserve to be maintained. The FAA has previously determined that a requirement prohibiting the PIC from beginning a UAS flight unless (considering wind and forecast weather conditions) there was enough available power for UAS to operate for the intended operational time and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater would ensure an equivalent level of safety to the fuel requirements of FAR § 91.151. Lesher's Poultry Farm, Inc. will adhere to the same reserve power requirement and an exemption from FAR § 91.151's fuel requirements for flight in VFR conditions is therefore appropriate.

3. FARs Pertaining to Part 137 Certification Requirements

Lesher's Poultry Farm, Inc. seeks an exemption from the following FARs in Part 137: §§ 137.19(c), (d) and (e)(2)(ii)(iii) and (v) Certification requirements, 137.31 Aircraft requirements, 137.33 Carrying of certificate, 137.41(c) Personnel, and 137.42 Fastening of safety belts and shoulder harnesses. An exemption from these FARs is necessary because the provisions are either not compatible with or are unnecessary in the context of the proposed UAS operations.

§ 137.19(c) Certification requirements

In the previous exemption granted to DroneXum, the FAA determined that relief from § 137.19(c) was necessary to permit persons holding a remote PIC certificate with small UAS

rating to act as PIC for commercial agricultural aircraft operations when utilizing a small UAS to conduct the operations. The FAA found that a commercial or airline transport certificate that § 137.19(c) requires was not a reasonable requirement for the small UAS agricultural operations proposed by DroneXum. The basis for the relief was that DroneXum, remote PICs would comply not only with the requirements of Part 107, subPart C, but also with the additional knowledge and applicable skill requirements in FAR § 137.19(e)(1) and (2)(i), (iv) and (vi). The relief was also based, in Part, on DroneXum, compliance with the training requirements in its operating documents.

The proposed operations are otherwise identical to that previously approved by the FAA in Exemption No.18413A. Consistent with the FAA's prior analysis, compliance with the requirements of Part 107, subpart C, the additional knowledge and applicable skill requirements in FAR § 137.19(e)(1) and (2)(i), (iv) and (vi), and compliance with the training requirements in Lesher's Poultry Farm, Inc.'s operating documents, will ensure that an equivalent level of safety will be achieved.

§ 137.19(d) Certification requirements § 137.31 Aircraft requirements

In Exemption No. 18413A, the FAA granted DroneXum,an exemption to §§ 137.19(d), Certification requirements, and 137.31(a), Aircraft requirements. Consistent with the FAA's prior analysis in Exemption No. 182413A, while Lesher's Poultry Farm, Inc.'s UAS will not have an airworthiness certificate, Lesher's Poultry Farm, Inc. will be capable of ensuring that the UAS are in a condition for safe operation based upon a thorough pre-flight inspection and compliance with the operating documents. The UAS components have a proven operational history and contain design safety features such that operations conducted under the requirements of this exemption will not adversely impact safety.

§ 137.19(e)(2)(ii), (iii), and (v) Certification requirements

Lesher's Poultry Farm, Inc. seeks an exemption from the knowledge and skill test requirements in § 137.19(e)(2)(ii), (iii), and (v) Certification requirements, because those requirements are not compatible or applicable to Lesher's Poultry Farm, Inc.'s proposed UAS operations. Consistent with the FAA's prior analysis in Exemption No. 18413A, Lesher's Poultry Farm, Inc. training and certification program described in the operating documents

provides the remote PIC with the necessary skills to safely operate the UAS. For this reason, granting relief from a demonstration of the skills described in § 137.19(e)(2)(ii), (iii), and (v) will not adversely impact safety, and therefore relief is warranted. Leshers Poultry Farm, Inc.’s pilots operating UAS under the exemption will still be required to demonstrate the skills listed at § 137.19(e)(2) as applicable, in accordance with the provisions of § 137.19(e), which requires such demonstration in order to obtain the agricultural aircraft operator certificate, unless otherwise exempted. Also, consistent with the FAA’s finding in Exemption No. 18200, that relief from the associated knowledge and skill test requirements of § 137.41(c) is also warranted because of the relief provided to § 137.19(e)(2)(ii), (iii), and (v), Leshers Poultry Farm, Inc. seeks an exemption from the interrelated knowledge and skill test requirements of § 137.41(c).

§ 137.31(b) Aircraft requirements § 137.42 Fastening of safety belts and shoulder Harnesses

Leshers Poultry Farm, Inc. requests relief from § 137.33(a) Carrying of certificate, which requires that a facsimile of the agricultural aircraft operator certificate be carried on the aircraft. The FAA has previously determined that relief from §§ 91.9(b) (2) and 91.203(a) and (b) for the carriage of the aircraft flight manual and aircraft registration onboard the aircraft is not necessary. Consistent with the FAA’s prior analysis, an exemption is warranted here provided that a facsimile of the agricultural aircraft operator certificate and all certificates of registration are kept in a location accessible to the remote PIC.

Finally, given that Leshers Poultry Farm, Inc.’s UAS will not have an airworthiness certificate, relief from § 137.33(b) Carrying of certificate, which requires the airworthiness certificate (if not carried in the aircraft) be kept available for inspection at the base of dispensing operation is conducted, is necessary. Leshers Poultry Farm, Inc. will keep registration certificates available for inspection.

Leshers Poultry Farm, Inc. has attempted to identify the appropriate C.F.R.s from which an exemption is needed to conduct the proposed operations in this Petition for Exemption. To the extent that the FAA determines that Leshers Poultry Farm, Inc. needs an exemption from other C.F.R.s which are not addressed or explicitly named to conduct the proposed operations, Leshers Poultry Farm, Inc. also seeks an exemption from those FARs for the reasons outlined above.

Q. PILOT CERTIFICATION

§ 61.3 (a) (1)(i) Requirement for certificates, ratings, and authorizations.

No person may serve as a required pilot flight crew member of a civil aircraft of the United States unless that person:

(1) Has in the person's physical possession or readily accessible in the aircraft when exercising the privileges of that pilot certificate or authorization –

(i) A pilot certificate issued under this part.

The petitioner will conduct the proposed operations under 14 CFR part 91, rather than under part 107. In general, part 91 is predicated on the presumption that the pilot in command conducting an operation under part 91 holds an airman certificate under part 61. As a result, the FAA has determined granting exemption from the requirement of § 61.3(a) (1) (i) to require a person holding a remote pilot in command certificate (with the appropriate training and demonstration of knowledge and skills required by this exemption) to conduct the operations to which this exemption applies will ensure clarity. The statutory obligation for an airman certificate is codified at 49 U.S.C. § 44711(a)(2). Pilots who conduct operations under this exemption with a remote pilot in command certificate would comply with § 44711(a)(2), as the FAA described in the operation and Certification of Small Unmanned Aircraft Systems final rule (81 FR 42064, 42088-89 (June 28, 2016)). The general requirements for all airmen include eligibility, aeronautical knowledge, and Transportation Security Administration (TSA) vetting. Given that the operation would occur only after airmen who hold a current remote pilot in command certificate have received specific training, have visited the area of operation and are fully capable of using the tools available to prepare for the operation, conduct comprehensive preflight actions, and conduct the operation only in a limited geographical area, the FAA has previously determined that a remote pilot certificate issued under 14 CFR part 107 provides the FAA sufficient assurance of the pilots' qualifications and abilities to perform the duties related to the operations authorized under this exemption. The remote pilot in command certificate confirms the petitioner's eligibility, secures TSA vetting, and ensures the PIC has the requisite aeronautical knowledge for operating the UAS within the NAS.

Remote pilots conducting operations under part 107 must complete a detailed aeronautical knowledge test, unless they already hold a certificate under 14 CFR part 61 and meet the

flight review requirements specified in § 61.56.9 As a result, all such pilots will have the requisite aeronautical knowledge that is a key component of safe completion of all operations that will occur under this exemption. In this regard, the FAA addressed the applicable parts of § 61.125, Aeronautical knowledge, in the remote pilot in command certificate requirements. For the reasons discussed below, this same rationale espoused by the FAA in previous approved exemptions, combined with Lesher's Poultry Farm, Inc.'s proposed safety mitigations, also supports a finding that the proposed operations under the requested exemptions can be conducted without adversely affecting safety.

While it is true that operations involving UAS weighing 55 pounds or more could raise additional safety concerns than operations involving small UAS, the unique nature of the proposed operations, including the low-risk rural environments in which the operations will occur, will ensure that safety is not jeopardized. While Part 107 will not apply to the proposed operations, wherever possible, Lesher's Poultry Farm, Inc. intends to conduct the proposed operations in accordance with Part 107. Moreover, all UAS operations that meet the definition of an "agricultural aircraft operation" will be conducted in accordance with those portions of Part 137 from which Lesher's Poultry Farm, Inc. is not exempted. In addition to compliance with Part 107 and the applicable sections of Part 137, Lesher's Poultry Farm, Inc.'s proposed operations include the following mitigations:

- Prior to any flight operation, Lesher's Poultry Farm, Inc. will visit the area of planned operation and inspect the terrain and vantage points. Lesher's Poultry Farm, Inc. utilizes several tools available to capture this environmental data, including high resolution LiDAR, photogrammetry, and handheld surveying tools. The result is a geo-rectified model of the unit, with GPS points accurately marking the boundaries of the geofenced flight operating area.
- Safety procedures and mitigations for simultaneous operation of the UAS are contained within the safety section of the enclosed Flight Operations and Procedures Manual.
- Following that, all state and local paperwork associated with the operation will be filed before and after operations. Lesher's Poultry Farm, Inc. will comply with all state laws regarding the application of pesticides. These include state and local agency notification, mapping, and specified safety procedures.
- The PIC will hold a Part 107 remote pilot airman certificate and be at least 18 years of age.
- Prior to beginning operations, the PIC will take all preflight actions as set forth in its

flight manual, which includes a comprehensive preflight checklist.

- At least one visual observer (VO) will be used for each aircraft during all operations. Both the PIC and VO will maintain a safe distance from the UAS when it is operating as set forth in its flight manual.
- Flights will be limited to a maximum altitude of no more than 200 feet above ground level (AGL) and will normally be flown at altitudes of 10 to 25 feet AGL or less over private fields and other agricultural areas.
- To further ensure the area of operation is clear of all non-Participants and any other potential hazards, prior to beginning agricultural operations (with UAS weighing 55 pounds or more), a small UAS will be used to survey and access the operating environment.
- The areas to be flown are remote agricultural sites or other uninhabited agricultural sites which makes for excellent VLOS conditions.
- All operations will occur in a closed-access environment.
- All personnel at the site will be controlled by Lesher's Poultry Farm, Inc. at the time of flying. The DJI T-30 shall operate from on-site takeoff/landing locations directly next to the PIC and co-located VO. The PIC and the VO will be able to verbally communicate during all operations or will utilize handheld radios on site. In addition, signage announcing future spraying operations will be posted at the site entrance warning any customer employees or non-Participants that an aerial spraying operation is occurring. This is an industry standard process.
- The maximum flight time for each UAS flight will be a maximum of 30 minutes, with most agricultural flights lasting approximately 10-20 minutes.

R. Lesher's Poultry Farm, Inc. 's Enhanced Pilot Training and Experience Standards

Through its training program, which requires aeronautical knowledge, experience, and flight proficiency beyond that required by Part 107, Lesher's Poultry Farm, Inc. will be able to achieve a level of safety equivalent to what would be obtained using a PIC holding a manned pilot certificate under Part 61. Lesher's Poultry Farm, Inc. has integrated safety elements into the operation of its UAS, including comprehensive pilot and VO training and certification requirements that establish an equivalent level of safety to operations conducted with a PIC that holds a manned pilot certificate. These requirements include: a comprehensive UAS

training course, which includes theory and practical components, a pilot theory exam, supervised flight training, including agricultural spraying, completion of Lesher’s Poultry Farm, Inc.’s training and examination program requirements, minimum flight time requirements, demonstrated practical flying ability for the relevant tasks, and continued periodic training after certification.

Aeronautical Knowledge

The following chart addresses each aeronautical knowledge requirement of § 61.125 and explains whether it is relevant to, different from, or addressed by Part 107 operations or Lesher’s Poultry Farm, Inc.’s internal procedures.

§ 61.125, Aeronautical Knowledge	Empire Drone Company LLC’s Operations Under Part 107
(1) Applicable Federal Aviation Regulations of this chapter that relate to commercial pilot privileges, limitations, and flight operations;	Addressed by Part 107
(2) Accident Reporting	Addressed by Part 107
(3) Basic aerodynamics and the principles of flight	Topics applicable to unmanned aircraft are included in Part 107.
(4) Meteorology	Applicable meteorology principles are covered by Part 107.
(5) Safe and Efficient Operation of Aircraft	Covered by Part 107 and included in Empire Drone Company LLC training. Topics applicable to unmanned aircraft are included in Part 107.
(6) Weight and Balance	“Loading and Performance” is addressed by art 107. Empire Drone Company LLC will comply with the weight limitations of Part 107 and will ensure that external loads do not negatively impact flight characteristics, as required by Part107.
(7) Performance Charts	Not directly applicable.
(8) Effects of exceeding aircraft performance limitations	“Loading and Performance” is addressed by art 107. Empire Drone Company LLC will comply with the weight limitations of Part 107 and will ensure that external loads do not negatively impact flight characteristics, as required by Part 107
(9) Pilotage and dead reckoning	Not applicable.

(10) Use of air navigation facilities	Topics applicable to unmanned aircraft are included in Part 107.
(11) Decision making and judgment	Covered by Part 107
(12) Principles and functions aircraft systems	Covered by Part 107 and by Empire Drone Company LLC's internal procedures and use of operations manuals.
(13) Emergency operations	Covered by Part 107.
(14) Night and high altitude	Not applicable.
(15) Operating within the NAS	Covered by Part 107.
(16) Lighter than air ratings	Not applicable.

Flight Proficiency

FAR § 61.127 contains flight proficiency requirements for specified aircraft categories. Part 107 contains no flight proficiency requirements, however, to ensure adequate flight proficiency,

Lesher's Poultry Farm, Inc. will require demonstrated multi-rotor proficiency in:

- Preflight preparation.
- Preflight procedures.
- Airport and heliport operations.
- Hovering maneuvers.
- Takeoffs, landings, and go-arounds.
- Performance maneuvers.
- Navigation.
- Emergency operations.
- Special operations; and
- Postflight procedures.

Aeronautical Experience

FAR § 61.129 contains requirements for aeronautical experience that are not required for operations conducted under Part 107. To ensure an adequate level of aeronautical experience, Lesher's Poultry Farm, Inc. will require its pilots to obtain an appropriate level of aeronautical experience, using § 61.129 as a guide, where applicable and reasonable. Many of the requirements § 61.129, however, are either inapplicable or excessive for Lesher's Poultry Farm, Inc.'s proposed operations. There is no need for Part 107 remote pilots to obtain time

spent in cross-country flight or instrument flight. Lesher's Poultry Farm, Inc. pilots will spend all of their time flying the make and model of multi-rotor aircraft that will be used in their operations. These aircraft are far less complicated than manned aircraft. The pilots can, therefore, achieve a comparable level of experience and safety by requiring 5 hours of total flight time of a multi-rotor system as the PIC with at least 10 take-off and landings.

S. Relief from condition and limitation 27

This relief is also now considered a summary grant as there have been previous approvals to petitions seeking the same. See FAA Exemption No. 18929A and FAA Exemption No. 18984. Lesher's Poultry Farm, Inc. seeks relief from condition and limitation 27 with the following conditions.

Condition and Limitation Number 27 states that:

27. All flight operations must be conducted at least 500 feet from all persons who are not directly participating in the operation, and from vessels, vehicles, and structures, unless when operating:

a. Over or near people directly participating in the operation of the UAS.

No person may operate the UAS directly over a human being unless that human being is directly participating in the operation of the UAS, to include the PIC, VO, and other personnel who are directly participating in the safe operation of the UA.

b. Near nonparticipating persons.

Except as provided in subsection (a) of this section, a UA may only be operated closer than 500 feet to a person when barriers or structures are present that sufficiently protect that person from the UA and/or debris or hazardous materials such as fuel or chemicals in the event of an accident. Under these conditions, the operator must ensure that the person remains under such protection for the duration of the operation. If a situation arises in which the person leaves such protection and is within 500 feet of the UA, flight operations must cease immediately in a manner that does not cause undue hazard to persons.

c. Closer than 500 feet from vessels, vehicles and structures.

The UA may be operated closer than 500 feet, but not less than 100 feet, from vessels, vehicles, and structures under the following conditions:

- (1) The UAS is equipped with an active geo-fence boundary, set no closer than 100 feet from applicable waterways, roadways, or structures;
- (2) The PIC must have a minimum of 7 hours' experience operating the specific make and model UAS authorized under this exemption, at least 3 hours of which must be acquired within the preceding 12 calendar months;
- (3) The PIC must have a minimum of 25 hours experience as a PIC in dispensing agricultural materials or chemicals from a UA;
- (4) The UA may not be operated at a groundspeed exceeding 15 miles per hour;
- (5) The UA altitude may not exceed 35 feet AGL; and
- (6) The PIC must make a safety assessment of the risk of operating closer than 500 feet from those objects and determine that it does not present an undue hazard.

d. Closer than 100 feet from vessels, vehicles and structures.

The UA may operate closer than 100 feet from vessels, vehicles, and structures in accordance with the conditions listed in 27.c. (2) through (6) and the following additional conditions:

- (1) The UAS is equipped with an active geo-fence boundary, set to avoid the applicable waterways, roadways, or structures; and
- (2) The operator must obtain permission from a person with the legal authority over any vessels, vehicles or structures prior to conducting operations closer than 100 feet from those objects.

T. FEDERAL REGISTER SUMMARY

Pursuant to Title 49 U.S.C. § 44807, Special authority for certain unmanned aircraft systems and 14 C.F.R. Part 11, 49 U.S.C. § 44701(f), and 14 C.F.R. Part 11, the following summary is provided for publication in the FEDERAL REGISTER, should it be determined that publication is needed:

Petitioner seeks an exemption from the following rules in Title 14 of the Code of Federal Regulations:

61.3 (a)(1)(i), 91.7(a), 91.119(c), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), 91.417(a) and (b), 137.19 (c), (d) and (e)(2)(ii)(iii) and (v), 137.31, 137.33, 137.41(c), 137.42.

Lesher's Poultry Farm, Inc. requests an exemption for the purpose of operating Unmanned Aircraft Systems (UAS) weighing 55 pounds or more, but no more than and 172 pounds at sea

level for the Agra T30, to provide commercial agricultural-related services in the United States.

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T. CONCLUSION

For the foregoing reasons, Lesher's Poultry Farm, Inc. respectfully requests that the FAA grant this Summary Grant Petition for Exemption. Should you have any questions, or if you need additional information to support Lesher's Poultry Farm, Inc.s Petition, please do not hesitate to contact the undersigned.

Sincerely,

Leslie J. Bowman